

Citation:

Burgess E, Lewanczuk R, Bolli P, Chockalingam A, Cutler H, Taylor G, Hamet P. Lifestyle modifications to prevent and control hypertension. 6. Recommendations on potassium, magnesium and calcium. Canadian Hypertension Society, Canadian Coalition for High Blood Pressure Prevention and Control, Laboratory Centre for Disease Control at Health Canada, Heart and Stroke Foundation of Canada. *CMAJ*. 1999 May 4; 160 (9 Suppl): S35-S45.

PubMed ID: [10333852](#)

Study Design:

Review (panel)

Class:

R - [Click here](#) for explanation of classification scheme.

Research Design and Implementation Rating:



NEUTRAL: See Research Design and Implementation Criteria Checklist below.

Research Purpose:

To review contemporary clinical research on the consumption through diet, and supplementation of the cations potassium (K), magnesium (Mg) and calcium (Ca) for the prevention and treatment of hypertension (HTN) in otherwise healthy adults (except pregnant women).

Inclusion Criteria:

Articles in English or French language published from 1966 through 1996.

Exclusion Criteria:

None stated.

Description of Study Protocol:

Recruitment

- A MEDLINE search of the literature was performed using the search term, HTN, and the terms potassium, magnesium and calcium in sequential searches
- Secondary searches were done using the references found in review articles and meta-analyses
- Additional articles were identified by reviewing the reference lists of the identified articles, were found in the personal files of the panel members and were suggested by other experts.
- The evidence and recommendations were presented for comment to the other panels for the guideline series, submitted for review to major Canadian organizations and presented at an

international conference on preventive cardiology, to allow further national and international input.

Design

Panel review.

Statistical Analysis

Not applicable.

Data Collection Summary:

Not applicable.

Description of Actual Data Sample:

- *Initial N*: 55 studies (37 RCTs and 18 cohort studies)
- *Age*: Adults
- *Ethnicity*: Varied by study
- *Location*: Not described.

Summary of Results:

Key Findings

- Despite suggestive epidemiologic data, intervention trials have failed to demonstrate that K supplementation prevents an increase in blood pressure or the development of HTN
- K supplementation may be effective in distinct groups of patients, such as those with diuretic-induced hypokalemia, those of African ancestry, and those who have low dietary K intake.

Author Conclusion:

Evidence does not support K supplementation (when given in addition to an average dietary intake of 60mmol per day) for normotensive people to prevent an increase in blood pressure, nor for hypertensive patients to reduce blood pressure.

Reviewer Comments:

Study Strengths

- *Reviewed both epidemiology and trial data on K supplementation*
- *Characteristics of studies reviewed presented clearly in tables*
- *Principles for grading the evidence were based on those previously used by the Canadian Hypertension Society (see part 1 of supplement).*

Study Limitations

- *Panel review, more susceptible to author bias*
- *Funding provided by pharmaceutical companies*
- *Search for articles not reproducible.*

Research Design and Implementation Criteria Checklist: Review Articles

Relevance Questions

1.	Will the answer if true, have a direct bearing on the health of patients?	Yes
2.	Is the outcome or topic something that patients/clients/population groups would care about?	Yes
3.	Is the problem addressed in the review one that is relevant to nutrition or dietetics practice?	Yes
4.	Will the information, if true, require a change in practice?	Yes

Validity Questions

1.	Was the question for the review clearly focused and appropriate?	Yes
2.	Was the search strategy used to locate relevant studies comprehensive? Were the databases searched and the search terms used described?	???
3.	Were explicit methods used to select studies to include in the review? Were inclusion/exclusion criteria specified and appropriate? Were selection methods unbiased?	No
4.	Was there an appraisal of the quality and validity of studies included in the review? Were appraisal methods specified, appropriate, and reproducible?	No
5.	Were specific treatments/interventions/exposures described? Were treatments similar enough to be combined?	Yes
6.	Was the outcome of interest clearly indicated? Were other potential harms and benefits considered?	Yes
7.	Were processes for data abstraction, synthesis, and analysis described? Were they applied consistently across studies and groups? Was there appropriate use of qualitative and/or quantitative synthesis? Was variation in findings among studies analyzed? Were heterogeneity issues considered? If data from studies were aggregated for meta-analysis, was the procedure described?	No
8.	Are the results clearly presented in narrative and/or quantitative terms? If summary statistics are used, are levels of significance and/or confidence intervals included?	Yes
9.	Are conclusions supported by results with biases and limitations taken into consideration? Are limitations of the review identified and discussed?	???
10.	Was bias due to the review's funding or sponsorship unlikely?	???

